and the readiness with which ideas recur. In a previous report in the Proceedings (*ante*, pp. 86) I have shown that even in so indifferent a matter as the ten digits, there are unconscious preferences of the mind, or, in other words, that the notions or images of certain digits come forward oftener and more readily than of others; and I have also shown *ante*, pp. 90-91, that the order of relative frequency is similar for different persons. It is probable that all ideas possess each its special degree of readiness of appearing in consciousness, and that the degree of readiness is approximately the same for a great many persons. This similarity probably also prevails in regard to the majority of ideas.

This aspect of our mental processes puts the problem of thought-transference in a somewhat different light from that in which we have been asked to view it. It is evident that if two people are requested to think of some one thing as a class, such as a letter of the alphabet, a playing card, a baptismal name, there is by no means an equal chance of their selecting any one; on the contrary, there is not only the probability that they will think of a special one first, but there is a chance of their both thinking of the same one, for the relative frequency or preponderance of one idea or image out of a set has been shown to be similar for a number of people. In order to prove the reality of thought-transference, it must be demonstrated that the observed coincidence of thoughts can *not* be explained by the law of relative frequency.—*From Proceedings of the Society of Psychical Research.*

MICROSCOPY.[1]

THE CULTURE OF INFUSORIA.[2]—*Damp chambers.* The first requisite in the culture of infusoria is suitable damp chambers, constructed with a view to reducing the evaporation of the water of the preparations to a minimum. Evidently, bell-jars, admitting a large volume of air, will not serve the purpose. Low, flat-bottomed dishes, with vertical sides, and about 20 cm. in diameter, are recommended. The dish is partly filled with fine, well-washed sand, and in this are planted longitudinally two upright strips of glass, of such a height that the superior edge is 4 or 5 mm. below the level of the edge of the dish.

On these upright pieces as supports are placed three others,

[1] Edited by C. O. Whitman, Director of the Lake Laboratory, Milwaukee.

[2] E. Maupas. La Multiplication des Infusoires ciliés. *Arch. de Zool. Expér. et Gen.* xvi., no. 2, 1888, p. 179.

the middle one having a width of 4-5 cm., the two others 2 cm. only. It is on these three slips that are placed the object slides bearing the infusoria. The whole is covered by a glass plate, fitted as hermetically as possible to the edge of the dish. The dish being filled with rain water up to the horizontal strips, the air space is reduced to a layer of 4 or 5 mm. in thickness. This layer of air is always saturated with moisture, and the preparations suffer only an extremely feeble evaporation.

For sorting and transporting infusoria, glass pipettes, about 10 cm. long, are used. The tapering end should be thin, and its opening not over 1 mm. in diameter. The infusoria are first placed *en masse* in a large drop of water upon a slide, and examined with a low magnifying power. The inside of the pipette is wet by filling it once with water. An infusorian having been selected under the microscope, the mouth of the pipette is placed near that side of the drop of water where the infusorian is found. As soon as the pipette touches the drop, a portion of it is drawn in by capillary attraction, carrying with it the specimen sought, together with, perhaps, others not wanted. The contents of the pipette are expelled upon a second slide. If the drop contain several infusoria, a drop of rain water is added, and the manœuvre with the pipette repeated. In this way the isolation of an infusorian may be surely and rapidly accomplished. After each operation with the pipette, it should be washed with care, by forcing fresh water through it several times. Some infusoria have a strong adhesive power, and it often happens that they are left adhering to the internal surface of the tube; hence the importance of washing after each experiment.

The isolated individual is covered with an ordinary cover-slip, preferably one 18 mm. square. The cover-slip may be supported by small pieces of bristles from a tooth-brush. As these pieces have a mean thickness of about .3 mm., it follows that the space inclosed represents a volume of about 100 cu. mm., and will hold 10 cg. of water, or about 5 drops. The entire space should be filled with water. It is very important in such work to use pipettes, slides, and slips that are perfectly clean. The least trace of a reagent left on the cover-slip may be enough to render the whole preparation valueless.

Infusoria thus inclosed and protected may live indefinately under perfectly healthful conditions. Supplied with proper food, they will develop and multiply with all the energy of their highest power of reproduction.

Supply of food. In order to supply carnivorous species easily with food, it is necessary to find among the more com-

mon infusoria a species of small size, that can be readily cultivated.

Cryptochilum nigricans answers perfectly these conditions. It is herbivorous, and occurs everywhere in abundance. In order to utilize it as food for carnivorous species, proceed as follows :—Prepare an infusion by cutting up a few pinches of hay in water, and heat the same for a few minutes to a temperature of 60° C. for the purpose of destroying strange species. Allow the infusion to stand two, three, or four days, according to temperature, until Schizomycetes have developed in it ; then sow some Cryptochila in it, taking care not to introduce other species at the same time. The vessel containing the infusion should always be covered with a closely-fitted plate of glass. The Cryptochila, finding abundance of food in the Schizomycetes, thrive and multiply by myriads. When the culture begins to decline—as it always will in regular course—it can be revived two or three times by adding crumbs of bread in small quantity. Too much bread causes acid fermentation which destroys the infusoria. Instead of hay, pepper might be employed for these infusions, but it would be necessary to determine by experiment the quantity that could be safely mixed with a given volume of water. Too large quantities have been found to give infusions that checked the development of the infusoria.

Having thus obtained a well stocked infusion, the mode of serving the Cryptochila to the carnivorous species isolated in the manner above described, is as follows :—Place a drop of the infusion on a slide, and cover it with a cover-slip. It will then be seen that the Cryptochila collect round the edge of the cover, and in this position they are easily drawn into a pipette, and then delivered over to the carnivorous species. This mode of feeding enables one to make sure that no foreign species is introduced into the culture. Other species would undoubtedly serve the purpose of food as well as Cryptochilum, for example, *Colpidium colpoda.*

In the culture of herbivorous species, Maupas uses boiled flour as food. A pinch of flour is placed in a sufficiently large quantity of rain water, and boiled two or three minutes. With this pap one can easily supply the needs of Paramaecium, Colpidium, Glaucoma, Vorticella, and probably all species that ordinarily feed almost exclusively on Schizomycetes. This food is easily prepared, and is readily served by allowing it to flow in small quantity under the cover-slip of the preparation. It keeps only a short time, and hence must be renewed every day or two.